DOCUMENT RESUME

ED 183 642 UD 020 233

AUTHOR	McCarthy, Kevin F.
TITLE	Housing Search and Mobility: Housing Assistance Supply Experiment.
INSTITUTION	Rand Corp., Santa Monica, Calif.
SPONS AGENCY	Department of Housing and Urban Development, Washington, D.C. Office of Policy Development and Research.
REPORT NO	Rand-R-2451-HUD
PUB DATE	Sep 79
CONTRACT	H-1789
NOTE	50p.: Not available in paper copy due to institution's restriction
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Community Satisfaction: Consumer Economics: *Housing: *Housing Discrimination: Low Income Groups: Low Rent Housing: *Mobility: Residential Patterns
IDENTIFIERS	Indiana (Saint Joseph County): Wisconsin (Brown County)

ABSTRACT

The basic premise for providing housing assistance to low-income households is that inadequate financial resources severely limit a household's ability to afford safe, sanitary, and decent housing. An important issue in designing programs to remedy this problem is the ability of low-income households to negotiate successfully for themselves in an open market. This report sheds light on that issue by showing how low-, moderate-, and high-income renter households in areas of Wisconsin and Indiana search for housing, how discrimination affects their search, and how different search procedures affect a household's ability to find bargains when it moves. Preliminary results indicate some of the ways in which discrimination impairs housing search, and suggest that the success of programs designed to broaden the residential options of low-income households may partly depend on the types of assistance they offer to participants. (Author/RLV)

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ED183642

HOUSING SEARCH AND MOBILITY

KEVIN F. McCARTHY

R-2451-HUD

SEPTEMBER 1979

HOUSING ASSISTANCE SUPPLY EXPERIMENT

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The research reported here was performed pursuant to Contract No. H-1789 with the Office of Policy Development and Research, U.S. Department of Housing and Urban Development. Statements and conclusions in this report are those of Rand's research staff and do not necessarily reflect the views of the sponsoring agency.

Library of Congress Cataloging in Publication Data

McCarthy, Kevin F
Housing search and mobility.

([Report] - Rand Corporation ; R-2451-HUD)
Bibliography: p.
1. Residential mobility--United States.
2. Minorities--Housing--United States. 3. Discrimination in housing--United States. I. United States. Dept. of Housing and Urban Development. II. Title. III. Series: Rand Corporation. Rand report ; R-2451-HUD.
AS36.R3 R-2451 [HD7293] 081s [301.5'4] 79-17594
ISBN 0-8330-0147-7

The Rand Publications Series: The Report is the principal publication documenting and transmitting Rand's major research findings and final research results. The Rand Note reports other outputs of sponsored research for general distribution. Publications of The Rand Corporation do not necessarily reflect the opinions or policies of the sponsors of Rand research.

Published by The Rand Corporation

PREFACE

This report was prepared for a conference on the housing choices of low-income families sponsored by the Office of Policy Development and Research, U.S. Department of Housing and Urban Development (HUD). The conference was held in Washington, D.C., on 8-9 March 1979.

The report draws on research conducted by Rand as part of the Housing Assistance Supply Experiment (HASE). The author wishes to thank many of his colleagues at Rand who have contributed to the preparation of this report. Special acknowledgments are to Helen Wagner, who performed the computer processing; to C. Lance Barnett, Ira S. Lowry, and John Mulford, who reviewed earlier drafts and offered suggestions for its improvement; to David J. Armor and Peter A. Morrison, who provided detailed comments that are reflected in the final version; to Jan Newman and Gwen Shepherdson, who typed the successive drafts; and to Dorothy Stewart, who edited the report and supervised its production.

SUMMARY

The basic premise for providing housing assistance to low-income households is that inadequate financial resources severely limit a household's ability to afford safe, sanitary, and decent housing. An important issue in designing programs to remedy this problem is the ability of low-income households to negotiate successfully for themselves in the open market. This report sheds light on that issue by showing how low-, moderate-, and high-income households search for housing, how discrimination affects housing search, and how different search procedures affect a household's ability to find bargains when it moves.

Underlying this analysis is a paradigm of search behavior that suggests when households will conduct active housing searches, what procedures they will use, and how those procedures might influence the kinds of moves they make. This paradigm assumes that although households will generally consider moving when they find that their current housing no longer meets their needs, they will decide to move only if the perceived benefits of moving outweigh the perceived costs. Since households never have perfect information with which to make such choices, they generally conduct active housing searches to reduce their uncertainty. The strategies they choose to use to conduct such searches are based on their perceived need for new housing, the type of housing they want, the level of effort they think they can afford, and their familiarity with the market. Events experienced during the search, particularly discrimination, may cause households to modify their initial strategies or even abandon their plans to move.

The paradigm is used to develop a series of hypotheses about search behavior that are tested by using survey data on residentially mobile renters. These data were collected as part of the Housing Assistance Supply Experiment. The hypotheses consider how search procedures differ by income level, how the frequency of discrimination varies, how discrimination affects search effort, how discrimination, search effort, and housing dissatisfaction are related, and how search procedures affect the searcher's ability to find bargains.

The results of the analysis indicate, contrary to our expectation, that search effort does not vary with income. Instead, most renters, regardless of income, appear to favor a low-cost search strategy when looking for housing. They spend an average of only 2 weeks searching, examine three or four alternatives, and rely mostly on friends and newspapers.

Low-income households are nonetheless at a relative disadvantage in the housing market because they are significantly more likely to encounter discrimination during their search. Discrimination affects search behavior by raising the psychological costs of searching and increasing the effort needed to find a new unit. Because discrimination increases the costs of searching, households who expect to encounter discrimination appear to be reluctant to undertake an active search unless they are particularly dissatisfied with their current housing.

Thus, the decision to search creates a possible dilemma for low-income households who are dissatisfied with their current housing and are considering moving. If they decide to search actively, they risk encountering discrimination, which reduces the effectiveness of search by increasing search costs. If, on the other hand, they forego any search for improved housing, they must tolerate a higher level of residential dissatisfaction. Barring some "windfall" discovery of a superior unit, their housing circumstances will remain unchanged.

Another factor that may contribute to some renters' reluctance to conduct intensive searches is that such searches do not often uncover housing bargains. Our results show that tips from friends are far more effective in locating bargains than in-depth searches.

Though preliminary, these results suggest some of the ways in which discrimination impairs housing search and, hence, efforts by low-income households to improve their housing by moving. In particular, they suggest that the success of programs designed to broaden the residential options of low-income households may partly depend on the types of relocation assistance they offer to participants.

These results may also have broader implications for our understanding of mobility. For example, by indicating how uncertainty

about the costs and benefits of moving may curtail active search, they suggest why households do not continually adjust their housing and why dissatisfied households don't always move. Moreover, by explicitly recognizing that the net benefits to be gained from moving may be proportional to the costs of finding a unit, they clarify the possible rationality in what others have called neither a very thorough nor a very rational search process.

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I. INTRODUCTION

The basic premise for providing housing assistance to low-income households is that inadequate financial resources severely limit a household's ability to afford safe, sanitary, and decent housing. In designing programs to remedy this problem, the Federal Government has traditionally relied on a supply-oriented strategy in which benefits are tied to subsidized units and eligible households must occupy those units to receive assistance. However, the high per-unit cost of supply programs, as well as their locational inflexibility, has recently prompted policymakers to consider demand-oriented alternatives.* In a demand program, the assistance would be given directly to recipients, who, using the subsidy to supplement their income, could then afford safe, sanitary, and decent housing in neighborhoods of their choice.

APPROACH TO THE STUDY

Underlying the demand approach is the assumption that given adequate resources, low-income households will be able to negotiate successfully for themselves in the open market. This assumption focuses attention on the mobility process and particularly on the effectiveness--or ineffectiveness--with which low-income households search for housing. If beyond the obvious constraints on their housing choices imposed by low incomes, low-income households also face other less fully recognized constraints on their ability to search for better accommodations and neighborhoods, that could have important implications for federal housing policy. For example, low-income households may be less adept at searching than other households either because they use less efficient search techniques or because they are more likely to experience discrimination.

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*The high cost of many supply programs results from their emphasis on new construction rather than on the maintenance of existing structures. The locational inflexibility is a necessary by-product of the fact that subsidies are tied to units rather than to recipients.

Despite the obvious importance of housing search, policymakers have little detailed knowledge about its dynamics, and prior research has not provided them with an adequate basis for policy decisions. Such studies divide into two types: (1) formal models of the decision to move (Speare et al., 1975; Quigley and Weinberg, 1977; and Hanushek and Quigley, 1978) that recognize housing search as a transaction cost but rarely examine search behavior, and (2) descriptive studies of search activity (Barresi, 1968; Hempel, 1969a and b; Barrett, 1973; Flowerdew, 1976) that avoid causal inference. As a result, too little is understood about how household moving decisions are shaped by the perceived benefits and costs of moving, how household uncertainty about these costs and benefits influences the decision to undertake an active search, or how such factors as discrimination affect moving behavior.

In this study, we focus on search techniques, how they differ by income level, and how they affect the outcome of the mobility process. A central question motivating the inquiry is whether the transaction costs of moving--i.e., the time, effort, and monetary costs involved in locating and moving to a new residence--impede the overall effectiveness of mobility as an avenue through which low-income households can improve their housing. Our purpose is to learn how households go about searching the market, how effective different search techniques prove to be, and what these patterns imply for demand-oriented programs of low-income housing assistance.

ORGANIZATION OF REPORT

The remainder of this report is divided into four sections: Section II presents the paradigm of search behavior that structures the analysis. Section III describes the data base and sample characteristics and discusses some important methodological issues involved in the analysis. Section IV presents and empirically tests hypotheses about five aspects of search behavior: (1) how search procedures differ by income level; (2) how the frequency of discrimination varies; (3) how discrimination affects search effort; (4) how discrimination and housing dissatisfaction are related;

and (5) how search procedures affect the searcher's ability to find bargains. Section V summarizes the major findings and discusses their implications.

II. A PARADIGM OF SEARCH BEHAVIOR

Guiding this analysis is a paradigm of search behavior that suggests when households will conduct an active housing search, what procedures they will use, and how those procedures may influence the kind of moves they make. The paradigm emphasizes the importance of specific household characteristics (e.g., income and race) and specific housing circumstances (e.g., owning or renting) in accounting for differences in search behavior. Homeowners, for example, are likely to search more thoroughly than renters, because an owner can expect to amortize his search costs over more years of occupancy than the comparable renter. Recent movers, having become familiar with the alternatives available in the market, may be more inclined to consider doing so again, given the comparative ease of repeating their search. On the other hand, racial minorities, families with children, and other households likely to encounter discrimination during their search may avoid certain market sectors in which the chances of finding a unit are small, or they may be discouraged from searching at all.

The common element in all of these circumstances is the notion that households implicitly weigh the perceived benefits of moving against the perceived costs and move only when it seems advantageous to do so. Benefits here include the housing and neighborhood improvements that may be realized through a move, e.g., more space or a safer neighborhood. Costs include those required to find better housing and to change residences once a suitable unit has been located. Specific search costs may include direct expenses (e.g., commissions paid to agents), the effort spent trying to find a unit, and the psychological costs that result from perceived discrimination. Specific relocation costs may include direct moving expenses, foregone earnings on security or utility deposits, and the closing costs of purchasing a home. Since the costs of searching and moving vary with household characteristics, so will the severity of their impact on a household's willingness to move.

A further element in the paradigm is the notion of disequilibrium. The benefits of moving, and thus the likelihood that a household will contemplate moving, will depend partly on how distant (or close) the household is to some hypothetical state of equilibrium between its desired and actual housing circumstances. For example, households who are severely cramped for space may be more likely to consider moving than those who, although generally satisfied with their residence, might prefer a larger yard. Depending on their circumstances, households may seek to improve the fit between what they have and what they need by either increasing or reducing their level of consumption. For example, a young couple expecting a child may need another bedroom, whereas a couple whose children have left home may find they are overhoused and thus paying more than they need for their purposes.

When contemplating a move, households never have perfect information with which to make their housing choices, and so they typically conduct a search to gather more information about possible alternatives. They embark on those searches without full knowledge of how much searching will be necessary and whether the eventual outcome will justify their efforts. We assume that prospective movers devise strategies for coping with such uncertainties. These strategies affect transaction costs and, consequently, both the probability of moving and the nature of the consumption adjustments that are made.

Strategies are adopted at the outset of the search and may then evolve to accommodate changing circumstances as households tailor their search to its success or failure in progressing toward their objectives. At one extreme, a household can minimize the costs of searching by abstaining from any activity at all--essentially doing nothing more than remaining alert. At the other extreme, it can maximize its chances of locating the single best alternative that is available by searching the market thoroughly. From previous research, we know that a significant fraction of movers approximate the "passive-but-alert" model: Between 10 and 25 percent of all movers claim to have made their decisions without engaging in an active search (Rossi, 1955; Barrett, 1973). Such households make "windfall" discoveries of

superior alternatives through information picked up from friends or simply by casual perusal of the market. Other households look for months before making a selection, considering dozens of different alternatives. Most households fall between these extremes, of course, or they alter their search procedures as they become familiar with what the market has to offer.

The search strategy that a household initially adopts will be influenced by three factors: (1) satisfaction with current housing, (2) the characteristics of the household, and (3) familiarity with the market. The level of residential satisfaction will influence the choice of strategy by engendering (or failing to engender) a perceived need to find a more suitable residence. A household more or less satisfied with its unit may be only "passively alert," but those that are seriously dissatisfied can be expected to search actively.

A household's characteristics will influence the type of unit it seeks and, correspondingly, the procedures it adopts to look for one. For some households, age or family circumstances may limit their ability to go around examining alternative units; others may find that the best strategy is to rely primarily on their own efforts. Circumstances affecting how long a household expects to remain in its new unit or whether it will encounter discrimination may also affect the effort it is willing or forced to exert to find a suitable residence.

A household's previous familiarity with the market should also influence its search strategy. Most households, since they enter the market infrequently, are unfamiliar with the options available (Hempel, 1969a and b). They must first explore the market to establish criteria for choosing a new unit and then locate and rank alternatives (Silk, 1971). Some households, however, have recently searched for housing, and their prior experience with the market reduces their search costs.

Difficulties encountered during a search may cause a household to alter its strategy or even abandon its plans to move altogether. For the most part, such difficulties are of the type consumers generally face when they enter the market and can be attributed to

unrealistic objectives, inadequate market knowledge, limited supply, etc. However, some households face special difficulties in their search because they are discriminated against in the market. Whether due to race, income, or family circumstances, discrimination increases a household's search costs by subjecting it to humiliation and hostility and forcing it to expend more effort to find a suitable residence.

Summarizing the paradigm briefly, then, we assume that a household will generally consider moving when it finds that its current residence no longer meets its needs. A household will follow through on that predisposition when it perceives that the benefits to be gained from moving exceed the costs. Since households never have perfect information with which to make their housing choices, they generally conduct an active housing search before deciding to move. Uncertain of how much effort a search will entail, or whether that effort will be adequately rewarded, households adopt a strategy at the outset of their search. Such strategies are chosen based on households' perceived needs for new units, the type of units they want, the level of search effort they think they can afford, and their familiarity with the market. Events experienced during the search, particularly discrimination, may cause households to modify their initial strategy or even abandon their plans to move.

This paradigm provides a useful context in which to consider the question: Do the transaction costs of moving, and in particular search costs, impede the effectiveness with which low-income households can use moving to improve their housing? The analysis that follows attempts to answer that question by testing hypotheses about how certain aspects of search behavior vary by income. Each of those hypotheses has been developed from the paradigm.

III. DATA BASE, SAMPLE CHARACTERISTICS, AND METHODOLOGICAL ISSUES

The data used for this analysis were gathered in the baseline surveys of tenants and homeowners in the two Housing Assistance Supply Experiment sites: Brown County, Wisconsin, and St. Joseph County, Indiana. Both surveys were conducted on a multistage, stratified-cluster sample of households that, when weighted, represent the counties' population.*

The comparisons reported here are restricted to a select sample of households in those two survey files. This sample includes only renters of regular units who moved into their residences from other units within the same site in the 5 years preceeding the interview. As such, the analysis excludes all in-migrants to each site, all occupants of irregular units, i.e., mobile homes and rooming houses, all homeowners, and all nonmovers, including those who may have searched for new units but did not move.

The rationales for those exclusions vary. In-migrants were excluded because prior studies have demonstrated that few migrants move for housing reasons, the type of move in which we are interested here (see Duncan and Newman, 1976; Morgan, 1972; U.S. Bureau of the Census, 1966). Occupants of irregular units were excluded because they constitute a small and relatively select group of households whose housing circumstances differ substantially from regular renters. Homeowners were excluded for two reasons. First, housing choice is not a straightforward consumption decision, but rather a consumption and an investment decision for owners. Correspondingly, the characteristics of owners' search and moving decisions may be sufficiently different from those of renters to warrant a separate analysis. Second, this analysis focuses specifically on how search costs may inhibit the moving behavior of low-income households. Since low-

*In both sites, the samples purposely excluded resident landlords and their agents. In Brown County, the sample also excluded some 1,300 occupants of federally subsidized housing. Consequently, those populations are not represented in the samples.

income homeowners are far more likely to repair or improve their current units rather than move to new ones, they are of less direct concern here. Finally, immobile households were excluded, even though they may have searched unsuccessfully for new units, because we lack any information on their search behavior in the baseline surveys. Future HASE surveys contain detailed information on such searchers, and they will be included, along with most of the other excluded groups, in subsequent analyses. However, the reader should be aware that our analysis of search behavior excludes this important set of searchers.

In conducting this analysis, two other data problems arose that deserve mention here. First, like most surveys, ours faced the problem of missing data, particularly on income items. Consequently, the results reported here pertain only to records that, in addition to meeting other sample requirements, had complete income information. Second, reflecting lessons learned from the survey experience in the first site, survey procedures were changed somewhat in St. Joseph County. Results are thus not always strictly comparable between sites. Consequently, the analysis was run separately for each site, and the text notes explicitly which intersite comparisons may be inappropriate.

The analysis reported here focuses on differences in search behavior among low-, moderate-, and high-income households. These three mutually exclusive income categories are defined in terms of a household's eligibility for the housing allowance program, which is calculated based on the difference between one-quarter of a household's adjusted gross income (.25 YAG) and what we estimate to be the standard cost of adequate housing, R^*, for a household of its size. Adjusted gross income has a clear advantage over total household income because it controls for differences in household size and extraordinary expenses in calculating a household's purchasing power.* The three income (eligibility) categories are defined as follows:

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*Adjusted gross income excludes 5 percent of gross income (10 percent if either head is over 61) and $300 annually for each dependent. Other deductions are allowed for work-related, child-care, or extraordinary medical expenses.

Low income (eligible)	$.25\ YAG < R^*$
Moderate income (near eligible) . .	$R^* < .25\ YAG < 1.5R^*$
High income (clearly ineligible). .	$.25\ YAG \geq 1.5R^*$

The analysis of search behavior reported here relies primarily on comparisons of means to describe differences among low-, moderate-, and high-income households. The mean values used in the comparisons are computed in the standard way. However, the variances of the mean differences are smaller than those ordinarily used to test for a difference between means. As a result, the comparisons of mean differences are more precise than is ordinarily the case. This increased precision is obtained by incorporating the assumptions about the determinants of search behavior contained in the search paradigm into the comparisons among income groups.

The procedure used to make these comparisons involves two steps. First, we estimate separate regressions for each measure of search behavior, using the determinants identified in the search paradigm as independent variables,* i.e.,

$$Y = \beta' X + \varepsilon, \qquad (1)$$

where Y = measure of search behavior, e.g., number of units examined,

β' = vector of regression coefficients,

X = vector of characteristics determining search behavior, including current housing and household characteristics, prior market knowledge, etc.,

ε = random error term.

*The characteristics of a household's current housing are measured with (1) the households' ratings of several dimensions of unit and neighborhood quality, and (2) their reported reasons for moving. The characteristics of the household itself that are included in the regression are race, education, and age of the household head; size and composition of the household; and sources and levels of household income. Prior market knowledge is measured by three variables describing recent mobility experience. Finally, the effects of discrimination are captured by six discrimination–income-level interaction terms. Separate equations estimated for each dependent measure are reported in Tables A.1 and A.2 in the appendix.

In the second step, the differences among the behavior of comparison groups are predicted by using the groups' mean values, i.e.,

$$\widehat{(\bar{Y}_I - \bar{Y}_E)} = b'(\bar{X}_I - \bar{X}_E), \tag{2}$$

where $\widehat{(\bar{Y}_I - \bar{Y}_E)}$ = predicted difference in search behavior--e.g., mean number of units examined--between low- and high-income households,

b' = vector of regression coefficients obtained from Eq. (1),

$(\bar{X}_I - \bar{X}_E)$ = actual difference in mean values of variables describing current housing, household characteristics, etc., of low- and high-income households.

The variance of the predicted difference is then

$$Var\ \widehat{(\bar{Y}_I - \bar{Y}_E)} = \sigma^2 (\bar{X}_I - \bar{X}_E)'(X'X)^{-1}(\bar{X}_I - \bar{X}_E)'. \tag{3}$$

The predicted difference in means, $\widehat{(\bar{Y}_I - \bar{Y}_E)}$, is the actual difference between the mean values of the two groups if X contains indicators of each group, which is always the case here. The predicted variance, however, will be smaller than that which would be obtained by a simple comparison of means, since the factors assumed to affect search behavior have been controlled.

Finally, we report both weighted and unweighted results. In general, where the comparison involves regression analysis, the results are left unweighted; where the results represent a simple cross-tabulation or average, they are weighted. When weighted, the results refer only to the analysis population--not the total population in either site. In all cases, tables are footnoted to inform the reader what sample and weighting procedure was used.

IV. SEARCH STRATEGIES AND THEIR OUTCOMES

Households adopt search strategies to reduce their uncertainty about the costs and benefits of alternative actions. Those strategies necessarily include decisions about what information sources to consult and how much effort to expend, and, as such, these decisions can influence the type of housing adjustment that is made. A household's initial plans may, of course, be altered because of information gathered during the search; and households may stop searching if they judge the costs of continued search to outweigh the benefits of moving.

First, we compare the way in which low-, moderate-, and high-income renters search for housing. Although these groups differ little in this regard, comparisons among groups of renters may be confounded by the fact that lower-income searchers encounter discrimination more frequently.

Second, we demonstrate that differences in discrimination, whether actual or expected, appear to affect the level of residential dissatisfaction that households are willing to tolerate before they undertake an active housing search.

Third, we show that the most important contributing factor in locating a bargain is the searcher's access to tips from friends and not the level of effort expended during a search.

COMPARISON OF SEARCH STRATEGIES

Although all households must factor transaction costs into their mobility decisions, we hypothesize that such costs are likely to represent an especially severe constraint to low-income households. There are several reasons for this assumption. First, lower incomes and tighter budgets reduce households' ability to absorb a given level of transaction costs. Second, low-income households are especially vulnerable to household, employment, and income changes that increase the likelihood that they will soon move again and shorten the period over which they might expect to amortize their transaction costs. Third, low-income searchers can generally expect

to experience more discrimination than other searchers and that, in turn, will increase their search costs.* In sum, we expect to find low-income households adopting lower-cost strategies and exerting less search effort than higher-income households.

Although our surveys contain no direct measures of search strategies, they can be gauged in several ways, according to the procedures used in the search. Our focus here is on four measures of the effort expended during the search:

- o Whether an active search occurred,
- o The length of that search,
- o The number of units examined,
- o The number of information sources consulted.

Our expectation is that low-income households will exhibit lower values on each of those dimensions. The evidence bearing on this hypothesis is reported in Table 1, which compares selected measures of search effort by income level in the two Supply Experiment sites. These data are more suited to intrasite rather than intersite comparisons, because survey procedures differed between sites. In Brown County, respondents were not explicitly offered the option of reporting that they did not search; only households reporting that they moved in with friends or relatives, or volunteering that they conducted no search, are classified as nonsearchers. In St. Joseph County, the instrument listed the response "did not search" as a legitimate one. This definitional difference explains why a much larger percentage of the movers in St. Joseph County report that they moved without ever conducting an active search. Similarly, the apparently greater effort of St. Joseph County searchers at every income level may be a by-product of survey procedures.**

Focusing on within-site differences, the data provide little support for the hypothesis that low-income searchers exert less

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*The rationale for this point is developed in the next subsection.

**In other words, the lowest-intensity searchers may be self-selected out of the St. Joseph County sample but not out of the Brown County sample.

Table 1

COMPARISON OF SEARCH EFFORTS AMONG ACTIVE SEARCHERS: RENTER HOUSEHOLDS IN BROWN COUNTY, WISCONSIN, AND ST. JOSEPH COUNTY, INDIANA

Search Characteristic	Percentage Distribution by Site and Income Level					
	Brown County			St. Joseph County		
	Low Income	Moderate Income	High Income	Low Income	Moderate Income	High Income
Active searchers as a percent of all movers	19.9	15.7	14.1	42.6	37.3	35.7
Length of Search						
1 week or less	41.8	40.0	42.0	34.7	36.2	44.0
1-4 weeks	38.4	42.2	42.1	37.2	36.4	31.1
1-3 months	15.6	13.7	14.5	18.7	18.6	20.1
4+ months	4.2	4.1	1.4	9.5	8.8	4.8
Median (days)	12.1	11.3	11.5	16.5	14.5	11.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Alternatives Examined						
1	38.5	37.4	29.0	33.1	24.8	23.3
2-5	33.4	39.8	39.7	46.9	48.8	48.0
6-11	19.5	18.1	23.0	15.8	17.1	23.8
12+	8.6	4.7	8.3	4.2	9.3	4.9
Median	3.31	3.21	4.08	3.33	3.72	4.13
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of Sources Used						
1	31.4	33.9	34.6	22.7	22.4	24.2
2	29.1	34.7	35.9	31.2	33.2	26.9
3	26.3	23.2	18.9	29.8	30.0	32.8
4	13.2	8.2	10.6	16.3	14.4	16.1
Mean	2.21	2.06	2.06	2.40	2.36	2.41
Total	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Tabulated by HASE staff from records for the baseline survey of households, Sites I and II.

NOTE: Entries are weighted estimates based on stratified probability samples of 1,454 renter households in Brown County and 1,225 in St. Joseph County who conducted an active housing search and moved locally in the 5 years preceding the surveys.

effort than their more affluent counterparts. Despite a slightly greater tendency for low-income households to move without searching, there are few consistent or significant differences among low-, moderate-, and high-income households in terms of search length, number of

units examined, or number of information sources used. Instead, it appears that most renters, at all income levels, favor a low-cost search strategy. For example, most renters in both sites spend only about 2 weeks in the market, look at only two or three units besides the one they actually choose, and use only two information sources.

Even though all classes of searchers use the same number of sources, they may not use the same ones. To examine this possibility, we next compare the way low-, moderate-, and high-income searchers use various information sources. Previous research has indentified four primary sources used in the search process (Rossi, 1955; Hempel; 1969a and b; Butler et al., 1969; Barret, 1973). Those sources include:

- o Personal contact with friends and relatives,
- o Newspaper listings of vacancies,
- o Riding or walking around looking for a vacant unit,
- o Contacting realtors or rental agents.

In addition to carrying different kinds of information, each source varies somewhat in its convenience and accessibility.* For example, contacting friends and relatives is perhaps the easiest and least costly method of finding a unit. Looking through newspaper listings of available vacancies is also relatively cost-free. Driving or walking around looking for "For Rent" signs, on the other hand, requires more effort; and contacting rental agents not only entails direct effort, it may also involve paying a commission.

Given these differences, we expect that low-income searchers will rely more heavily on friends and newspapers than will high-income searchers. The data bearing on this hypothesis are presented in Table 2. Like previous analysts, we use three measures to compare

*Data supplied by landlords in our two sites testifies to the selectivity of information carried by different sources. For example, landlord data indicate that owners of low-rent, single-family, and rural rental properties rely more heavily on word of mouth and unsolicited contacts to find tenants than do managers of higher-rent and multiunit properties. The latter owners, in contrast, are more likely to use newspapers and rental agents.

Table 2

INFORMATION SOURCES USED BY ACTIVE SEARCHERS: RENTER HOUSEHOLDS IN BROWN COUNTY, WISCONSIN, AND ST. JOSEPH COUNTY, INDIANA

Source of Information	Rate (%) by Site and Income Level					
	Brown County			St. Joseph County		
	Low Income	Moderate Income	High Income	Low Income	Moderate Income	High Income
A. Percent Using Indicated Source						
Friend or relative	71.1	64.1	64.4	86.4	78.9	79.5
Newspaper advertisements	83.5	88.1	84.7	76.7	81.9	83.8
Looking at properties	39.7	30.1	30.8	50.1	49.7	44.7
Rental agent	26.8	23.1	25.6	26.5	26.0	32.8
B. Percent Locating New Home Through Indicated Source						
Friend or relative	32.0	27.1	29.1	50.7	40.5	39.6
Newspaper advertisements	59.6	64.9	61.9	33.2	42.9	43.7
Looking at properties	4.5	4.2	4.2	8.8	7.4	5.7
Rental agent	2.0	1.4	2.4	.1	1.7	2.8
C. Percent Effectiveness of Indicated Source (B/A)						
Friend or relative	44.8	42.2	45.2	58.4	51.2	49.8
Newspaper advertisements	71.2	73.7	73.2	43.2	52.2	52.1
Looking at properties	11.4	13.8	13.5	17.4	14.7	12.8
Rental agent	7.1	6.1	9.4	.5	6.5	8.7

SOURCE: Tabulated by HASE staff from records for the baseline survey of households, Sites I and II.

information usage (Rossi, 1955). The usage rate (A) indicates the percentage of searchers using each source. The location rate (B) indicates the percentage of searchers who located their units with each source. The effectiveness rate (C) indicates what percentage of searchers using each source located their units through that source.

The results once again fail to support our hypothesis, indicating instead that income does not significantly affect information usage patterns. Thus, all groups use friends and newspapers considerably more frequently than the two alternatives, just as most low- and high-income searchers find their units through those sources. This usage

pattern, coupled with the fact that contacting friends and reading newspaper listings are the least costly ways to find units, supports the notion that most renters at all income levels favor a low cost search strategy. Moreover, given the differential effectiveness of these various information channels, that strategy is reasonable.

Although the data in Table 2 fail to support the notion that information usage patterns differ by income level, they do uncover a noteworthy difference in search patterns that suggests that discrimination may be a potentially important conditioning influence on search behavior. In Brown County, newspapers are the most frequently used source and, judging from the location and effectiveness rates, the most effective source. Although newspapers are also used extensively in St. Joseph County, friends are used more often and more effectively there, especially by low-income searchers. Since, unlike Brown County, St. Joseph County is racially and ethnically heterogeneous, this difference may indicate that St. Joseph County landlords avoid advertising; by dealing through informal information networks, they can forestall inquiries from blacks or others that they regard as undesirable tenants. If widespread, this practice could directly affect the way households search the market by effectively blocking off one channel of information. Moreover, this difference calls attention to discrimination as a potentially important influence on search behavior.

DISCRIMINATION AND HOUSING SEARCH

When households undertake an active housing search, they risk the chance that landlords will refuse to rent to them because of their characteristics. Although landlords may have reasons to prefer one class of tenant to another, searchers who encounter discrimination will face higher search costs in the form of the additional effort needed to find housing and the humiliation and resentment they may experience because of such treatment. While any searcher encountering discrimination is subject to its costs, we hypothesize that low-income households are particularly susceptible because the

characteristics often associated with their economic status--e.g., dependence on public assistance, single mothers with children, racial minority--make them less desirable tenants in the view of some landlords.

Discrimination is, of course, a difficult behavior to measure. Here we use searchers' responses to questions asking whether anyone was reluctant to rent to them because of their age, sex, marital status, race, nationality, or source of income or because they had children or pets. Thus, the term discrimination is used here to denote the number of separate types of discrimination encountered rather than the number of separate incidents.

The frequency with which searchers in both sites report encountering each of those types of discrimination is reported in Table 3.

Table 3

TYPES OF DISCRIMINATION ENCOUNTERED BY ACTIVE SEARCHERS: RENTER HOUSEHOLDS IN BROWN COUNTY, WISCONSIN, AND ST. JOSEPH COUNTY, INDIANA

Type of Discrimination[a]	Frequency of Occurrence (%)	
	Brown County	St. Joseph County
Age	9.2	11.6
Sex	5.3	5.4
Marital Status	13.1	13.3
Race	1.2	3.7
Nationality	.8	2.1
Income Source	7.6	12.8
Children	12.2	14.8
Pets	12.4	17.7

SOURCE: Tabulated by HASE staff from records for the baseline survey of households, Sites I and II.

NOTE: Entries are weighted estimates based on stratified probability samples of 1,325 renter households in Brown County and 811 in St. Joseph County who conducted an active housing search and moved locally in the 5 years preceding the surveys.

[a]Based on respondents' answers to the question, "While you were searching, was anyone reluctant to rent you a unit because of your (age, marital status,...)?"

The pattern that emerges here indicates that, overall, searchers do not perceive race or nationality to be the most important basis for discrimination. Instead, they believe that their marital status, sources of income, children, or pets are more likely to cause landlords to discriminate against them.*

Data on the frequency with which low- and high-income searchers experience discrimination are given in Table 4. These results support the hypothesis that discrimination is a more severe obstacle to the efforts of low-income searchers than to others. In both sites, low-income searchers are not only significantly more likely to experience discrimination than other searchers, but they also encounter more types of discrimination when they search.**

In addition to the psychological costs that discrimination exacts, it should also increase the difficulty of finding an acceptable unit, since it effectively narrows the range of available alternatives. Therefore, we expect that searchers who encounter discrimination will be forced to exert more effort than those who do not. The data in Table 5, which compares three measures of search effort among low-, moderate-, and high-income searchers, controlling for the number of types of discrimination experienced, clearly support this expectation. For all three indicators of effort, it is apparent that, regardless of income level or location, searchers who experience discrimination search longer, examine more alternatives, and use more information

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*Of course, the frequencies listed in Table 3 refer to all searchers rather than any particular class. Thus, the finding that only about 4 percent of the active searchers in St. Joseph County reported that they experienced racial discrimination reflects the fact that, while 20 percent of the black searchers felt they experienced discrimination on account of their race, only 20 percent of all searchers were black. However, even among minority searchers, more felt that they experienced discrimination on account of their children than their race.

**The test for the significance of this comparison is reported in Table A.3 in the appendix.

Table 4

DISCRIMINATION PROBLEMS ENCOUNTERED DURING HOUSING SEARCH: RENTER HOUSEHOLDS IN BROWN COUNTY, WISCONSIN, AND ST. JOSEPH COUNTY, INDIANA

Class of Searchers	Measure of Discrimination					
	Brown County			St. Joseph County		
	Low Income	Moderate Income	High Income	Low Income	Moderate Income	High Income
Percent of All Searchers						
Searchers encountering discrimination	41.0	32.1	23.8	45.6	41.2	38.2
Average Number of Kinds of Discrimination Encountered[a]						
All searchers	.86	.53	.33	.98	.74	.66
Searchers encountering discrimination	2.10	1.65	1.39	2.15	1.80	1.73

SOURCE: Tabulated by HASE staff from records for the baseline surveys of households, Sites I and II.

NOTE: Entries are weighted estimates based on stratified probability samples of 1,325 renter households in Brown County and 811 in St. Joseph County who conducted an active housing search and moved locally in the 5 years preceding the surveys.

[a]Based on respondents' answers to the question, "While you were searching, was anyone reluctant to rent you a unit because of your (age, marital status,...)?"

channels than those who do not.* Testifying to the strength of this relationship, each measure of search effort increases monotonically with the number of types of discrimination encountered with only

*The hypothesis here implicitly assumes that discrimination increases search effort rather than effort and discrimination both being determined jointly. Since an argument can be made for the reverse assumption, we tested for the possibility that the various measures of search effort and the number of types of discrimination encountered might be determined jointly. Those tests indicated that although the various measures of search effort are clearly interrelated, they are not inherently related to the discrimination measure.

Table 5

EFFECTS OF DISCRIMINATION ON THE SEARCH EFFORTS OF ACTIVE SEARCHERS: RENTER HOUSEHOLDS IN BROWN COUNTY, WISCONSIN, AND ST. JOSEPH COUNTY, INDIANA

Number of Discrimination Problems	Search Effort by Site and Income Level					
	Brown County			St. Joseph County		
	Low Income	Moderate Income	High Income	Low Income	Moderate Income	High Income
Median Search Length (Days)						
None	7.3	9.9	11.0	13.6	10.4	9.1
One	16.3	12.7	14.4	18.2	18.6	14.5
More than one	19.8	14.3	10.3	22.2	25.3	20.7
Median Number of Alternatives Examined						
None	0	1.73	2.90	1.56	2.04	2.76
One	3.53	2.66	4.45	2.60	2.74	3.58
More than one	5.01	4.21	4.42	3.88	5.17	3.95
Average Number of Sources Used						
None	1.94	1.98	1.99	2.13	2.15	2.24
One	2.41	2.22	2.36	2.52	2.53	2.43
More than one	2.74	2.23	2.15	2.88	2.82	2.98

SOURCE: Tabulated by HASE staff from records for the baseline surveys of households, Sites I and II.

NOTE: Entries are weighted estimates based on stratified probability samples of 1,325 renter households in Brown County and 811 in St. Joseph County who conducted an active housing search and moved locally within the 5 years preceding the surveys.

three exceptions. Moreover, of the 54 comparisons reported in Table 5, 31 are significant.*

Thus, discrimination not only increases the psychological costs of searching, it also increases the amount of effort needed to find an acceptable unit. As a result, searchers who encounter discrimination may be forced to modify their moving goals or even to terminate

*Those tests of significance are reported in Tables A.4 and A.5 in the appendix.

their search and postpone moving. Similarly, households who may be considering a move but expect to encounter discrimination, may decide to postpone their search.

Since discrimination clearly increases search effort, it is possible that the greater frequency with which low-income searchers experience discrimination may also have confounded the earlier comparison of search effort by income level (see Table 1). The data in Table 5 enable us to test that proposition by showing how search effort differs among income groups after controlling for the number of types of discrimination experienced during the search. If the different risk of experiencing discrimination confounded the earlier comparison, then we should find that among households experiencing no discrimination, search effort increases with income.

The pattern reflected in the data is inconclusive. In Brown County, low-income searchers who encounter no discrimination do indeed search for significantly shorter periods and look at significantly fewer units than more affluent searchers. However, no clear pattern is evident in St. Joseph County, where low-income searchers examine fewer units yet also search for longer periods. This difference between sites might be associated with differences in the frequency or effect of various types of discrimination or with the way the different populations in the sites react to those problems. However, without further research, it seems appropriate to note (a) that discrimination clearly affects the effort required to find a unit and (b) that on at least one measure, the number of units examined, discrimination confounds comparisons between low- and higher-income searchers.

DISCRIMINATION, SEARCH EFFORT, AND HOUSING DISSATISFACTION

The effect of discrimination on search effort raises important questions about the relationship between why households search for different accommodations and what problems they encounter. Our paradigm asserts that households can be assumed to undertake an active housing search only when they expect to benefit from doing so (i.e., the perceived benefits of searching outweigh the costs). A

corollary of the assumption is that the effort that households are willing to invest in a search will depend on the benefits they expect to gain from moving. Discrimination, either actual or expected, may force households to revise those expectations, since it narrows the range of available options and increases the costs of finding an acceptable unit. Correspondingly, households who are considering a move may be deterred from conducting an active search if they anticipate encountering discrimination, just as households who experience discrimination while searching may subsequently decide to discontinue their search.

The common element in both of those situations is the notion that households who anticipate that they will experience discrimination must also anticipate higher moving benefits to compensate for the added costs that discrimination imposes. Although we cannot test this proposition directly, since we have no measures of anticipated moving benefits, one indirect test of its validity is to compare the ratings awarded by searchers to their premove dwellings and neighborhoods, grouping the searchers by the number of types of discrimination they experience. Those ratings, which directly measure the perceived need for a new residence, should also indicate, on average, the potential benefits to be gained from moving. Thus, this comparison should reveal whether discrimination can dissuade households from attempting to improve their housing by moving.

The four measures of premove housing circumstances used here include: (1) a measure of crowding (persons per room), (2) indices of searchers' complaints about overall unit condition, (3) neighborhood safety, and (4) overall neighborhood condition. Since low-income renters generally occupy lower-rent units, and thus might be expected to express more dissatisfaction than higher-income renters, the four condition ratings are compared separately for low- and high-income households in Fig. 1. To clarify the patterns, moderate- and high-income households have been grouped.

The results confirm our expectations. In virtually every case, searchers who encountered discrimination were more dissatisfied with their premove residence than comparable-income searchers who did not.

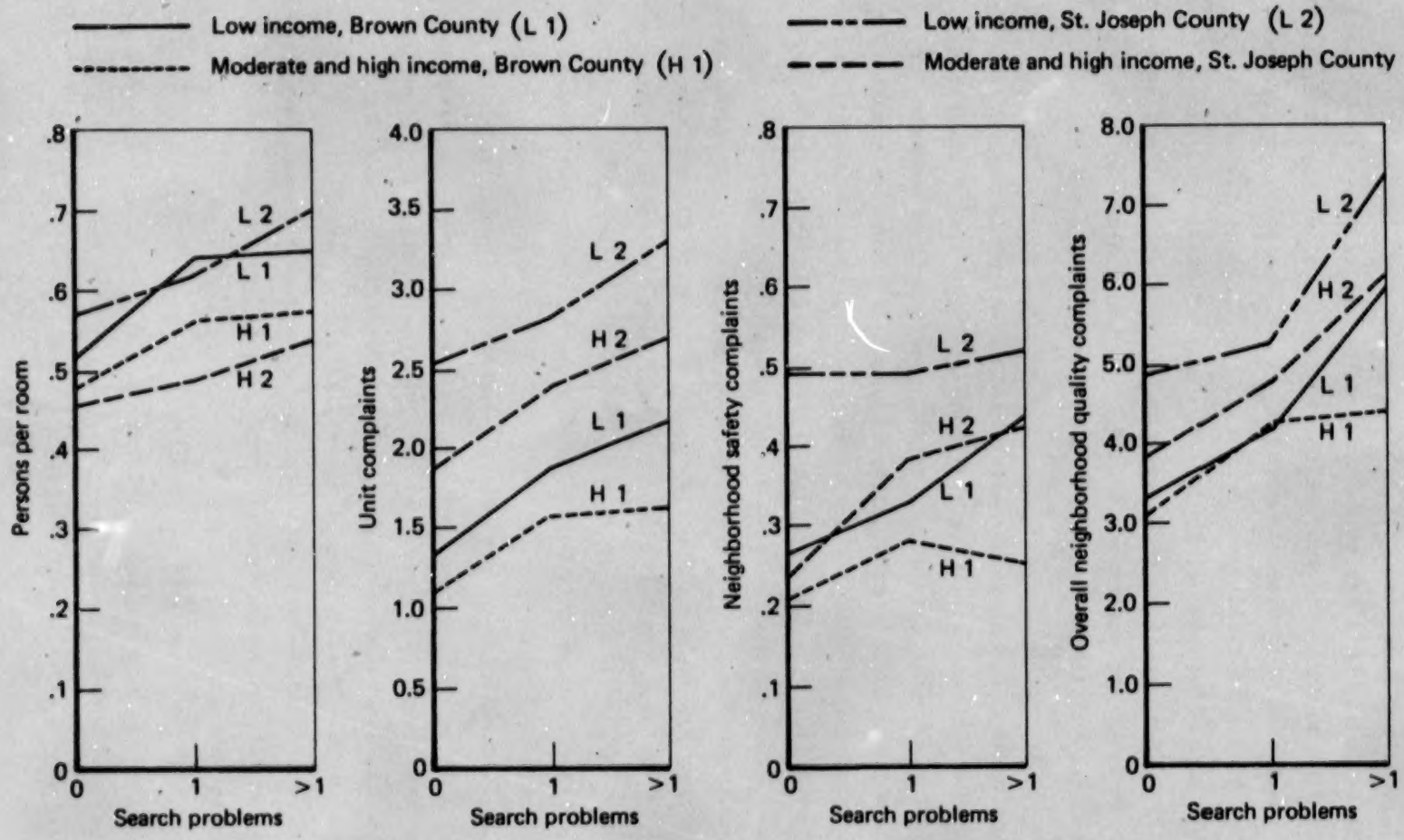

Fig. 1 — Comparison of premove housing and neighborhood quality among low- and high-income searchers by number of types of discrimination encountered: Brown County, Wisconsin, and St. Joseph County, Indiana

Moreover, the more discrimination encountered, the higher the level of premove dissatisfaction. We interpret these differences to mean that households who anticipate or actually experience discrimination during their search must also anticipate greater moving benefits before they will be willing to bear the added search costs that discrimination brings.

This comparison cannot be considered conclusive because it currently excludes ratings of nonsearchers and searchers who did not move. Nonetheless, it suggests that discrimination can cause households to forego moving and, as a consequence, to tolerate more residential dissatisfaction. Moreover, this process is particularly important for low-income households, since they experience more discrimination than others.

SEARCH PROCEDURES AND THE ABILITY TO FIND A BARGAIN

The significance of differences in search behavior will depend on how search procedures affect the outcomes of the mobility process. There is considerable reason to assume that search behavior should have such an effect because the success of housing choices, like other types of consumer behavior, should depend on the information available to make those choices.

There are, of course, several ways to measure the effects of search procedures on mobility. Here, we look at one--the ability of households to find bargains when they move.* We hypothesize that intensive searches should yield housing bargains. This hypothesis assumes that intensive housing searches, particularly those that do not involve discrimination, should provide searchers with a level of market knowledge that enables them to better find and recognize bargains. To test this hypothesis, we have regressed our bargain measure on variables describing the procedures used in the search and on a set of household characteristics.

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*Alternatively, the effect of search procedures on moving outcomes could be evaluated in terms of a household's ability to realize its premove housing objectives or in terms of the total change in the volume of services consumed.

We define a housing bargain in terms of the difference between the rent actually paid for a given dwelling and the average rent for dwellings with the same attributes. For each searcher's chosen dwelling, we estimate the appropriate average rent by using an hedonic index fitted to HASE data.* The difference between actual and predicted rent is expressed as a percentage of predicted monthly rent, i.e., a monthly rent discount. Positive values indicate that households are paying a premium for their rents, and negative values indicate that households are getting a bargain.

Seven search-behavior variables are used to predict a household's ability to get a bargain: a dummy variable, indicating whether the household conducted an active search; the number of units examined in the search; the length of the search; a weighted sum of the number of information sources used, where the weights are based on the presumed effort involved in their use;** the number of types of discrimination encountered during the search; and two interaction terms designed to identify diametrically opposed search strategies.

Table 6 shows the regression results for Brown County only (hedonic prices have not yet been estimated for St. Joseph County). Those results indicate that although search procedures do affect a mover's ability to find bargains, inside information is more important than search effort. For example, none of the first four measures of direct search effort significantly affect a searcher's ability to find bargains. In addition, searchers who encounter discrimination, which increases search effort, pay a premium.

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*An hedonic index consists of a set of housing attributes and associated price coefficients, the latter estimated by regressing rent on attribute values. The coefficients are estimates of the average market price for units of their associated attributes, so multiplying the vector of coefficients by the specified attribute vector of the searcher's chosen dwelling gives the average or "expected" market rent for such a dwelling. See C. Lance Barnett, *Using Hedonic Indexes To Measure Housing Quantity*. The Rand Corporation, R-2450-HUD, forthcoming.

**The weights are as follows: personal contacts = 1, newspapers = 2, driving or walking around = 3, real estate or rental agents = 4.

Table 6

RENT DISCOUNT EQUATIONS: RENTER HOUSEHOLDS IN BROWN COUNTY, WISCONSIN

Variable	Possible Values	Coefficient	Value of t
Dependent			
Monthly rent discount (%)	Continuous	--	--
Independent			
Constant	--	3.05	.55
No active search	Yes = 1; No = 0	-.10	1.62
Units examined (ln)	Positive continuous	.86	1.25
Search length (ln)	Positive continuous	-.27	.78
Sources used	1-10	.11	.46
Problems encountered (ln)	Positive continuous	2.88	2.31[a]
Low intensity--friends	Yes = 1; No = 0	-5.96	3.30[a]
High intensity--no problems	Yes = 1; No = 0	-1.63	.37
Background			
Local moves	Positive continuous	-.38	.71
Length of stay (ln)	Positive continuous	-.52	1.11
Head's years of schooling	Positive continuous	.61	2.40[a]
Single male head	Yes = 1; No = 0	1.00	.49
Single female head	Yes = 1; No = 0	.45	.22
Single head with children	Yes = 1; No = 0	1.16	.41
Single person household	Yes = 1; No = 0	-5.34	2.76[a]
Age of Household Head			
<21	Yes = 1; No = 0	-2.59	.94
21-29	Yes = 1; No = 0	-6.15	2.98[a]
30-39	Yes = 1; No = 0	-.80	.34
60-69	Yes = 1; No = 0	-2.73	.79
70+	Yes = 1; No = 0	3.61	.81
Number of children	Positive continuous	.75	1.32
Income eligible	Yes = 1; No = 0	-4.71	3.17[a]
Near eligible	Yes = 1; No = 0	-1.15	.80
Income Sources (%)			
Welfare	Positive continuous	.05	1.28
Pensions & social security	Positive continuous	-.03	.61
Earnings	Positive continuous	-.03	.86
R^2		.113	
F		4.64	

SOURCE: Analysis by HASE staff from records for the baseline survey of households, Site I.

NOTE: Regression analysis was performed on records of 933 renter households paying full market rent and moving locally in the 5 years preceding the survey.

[a]Coefficient is significantly different from zero at the .05 level.

Because the search effort and discrimination measures are correlated, the two interaction terms have been used here to identify the effects of distinctly different search strategies. Searchers using the low-cost strategy of searching for a short time and relying exclusively on tips from friends are identified here as inside information searchers and receive, on average, a 6-percent monthly rent discount. In contrast, searchers employing a high-intensity search strategy by looking at many units and using all four information sources, and encountering no discrimination, pay average market rents. The contrasting effects of these two search strategies suggest that the ability to find a bargain depends more on whom you know than on how hard you search. This finding may reflect the advantages that personal referrals offer both landlords and tenants. Tenants who discover units through tips from friends are able to find bargains with very low search costs. Landlords who rely primarily on referrals to find tenants avoid the cost of advertising and have the additional advantage of being able to screen out unfamiliar and possibly undesirable tenants.

Although the search procedures used clearly condition a household's success in finding a bargain, the significance of several household variables testifies to the fact that not all searchers are equally adept or interested in bargains. Since our paradigm asserts that households will only move to acceptable units, the significant household characteristics can be interpreted as identifying households for which cost constitutes an especially important criterion in choosing their dwellings. From this perspective, it appears that education significantly diminishes the relative importance of cost vis-à-vis other aspects of the housing bundle. In contrast, single-person households, households in their twenties, and low-income households are significantly more concerned with cost.

The negative coefficient of the single-person-household variable can be interpreted in either of two ways. Possibly, housing is less important for such households, so they place less emphasis on unit and neighborhood characteristics and more on costs. Alterna-

tively, as tenants, such households may be relatively trouble free, enabling them to secure discounts from landlords.

Renters in their twenties are generally in a transition period of their family and economic cycles. As a result, their demands for housing change rapidly and they move often. Correspondingly, they may be more sensitive to cost than to other characteristics. Finally, the negative coefficient of the low-income variable simply underscores the importance of cost in their housing choices.

V. SUMMARY AND DIRECTIONS FOR FUTURE RESEARCH

This analysis has demonstrated differences in housing search behavior by income level and has explored some possible implications of those differences for housing policy. In this final section, we summarize these differences and their policy implications and discuss directions for future research.

DIFFERENCES IN HOUSING SEARCH BEHAVIOR AND THEIR POLICY IMPLICATIONS

Most renters, regardless of income, appear to favor a low-cost search strategy when they are looking for housing. They spend an average of only 2 weeks searching, examine three or four alternatives, and rely mostly on friends or newspapers. This finding partly suggests why, counter to our expectations, we found little difference in search effort between low- and high-income renters.

Low-income households are nonetheless at a relative disadvantage when they search, because they are significantly more likely to encounter discrimination during their search. Discrimination raises the psychological costs of searching and increases the effort needed to find an acceptable unit. Although searchers who encounter discrimination are vulnerable to those effects, low-income households encounter discrimination more often and are less able to bear the added costs it imposes on their search for better housing.

For low-income households who are dissatisfied with their current housing and are considering moving, the decision to search creates a possible dilemma. If the household decides to search actively, it risks encountering discrimination, which reduces the effectiveness of search by increasing search costs. If, on the other hand, the household foregoes any search for improved housing, it must tolerate a higher level of residential dissatisfaction. Barring some "windfall" discovery of a superior unit, its circumstances will remain unchanged. Apparently, many low-income households choose not to search, and our paradigm offers a possible explanation of why.

An additional factor that may contribute to some renters' reluctance to conduct intensive searches is that such searches do not often uncover housing bargains. Instead, our results have shown that tips from friends are far more effective in locating bargains than intensive searches.

These results, while preliminary, suggest some of the ways in which discrimination impairs housing search and, hence, efforts by low-income households to improve their housing through moving. Since the logic of demand-approaches to housing assistance is to help low-income households act more effectively in their own interest in housing markets, this evidence has direct policy relevance. It points to a tendency toward inaction in the housing search process, thereby uncovering a potential weakness in this logic that may require correction. In particular, the success of demand programs in broadening the residential options of low-income households may depend partly on the types of relocation assistance they offer to participants. For example, such programs might facilitate the mobility of participants who seek better housing but cannot bear high search costs by providing moving allowances or detailed relocation information, e.g., a list of available vacancies.*

These results also contribute to our general understanding of residential mobility. For example, they indicate that uncertainty about the costs and benefits of moving curtails active search, which suggests why households do not continually adjust their housing and why currently dissatisfied households don't always move. Moreover, since the costs of searching must be included in the calculation of the net benefits of moving, what others have called neither a very thorough nor very rational search process (see Barrett, 1973; Hempel, 1969a and b) may, in fact, be reasonable behavior. Faced with a situation in which the harder a household searches, the better the unit it must find, it is not surprising

*We should note, however, that both of the supply experiments provided general housing information sessions which few recipients attended and that newspapers already provide searching households with lists of vacancies.

that many renters appear to choose what they regard as the first acceptable unit rather that the best available unit.

DIRECTIONS FOR FUTURE RESEARCH

We see five directions in which future research might extend these preliminary findings. First, the model underlying this analysis needs to be fully specified and tested. Second, the groups excluded from the current analysis, e.g., homeowners and searchers who don't move, need to be incorporated. Third, the analysis should focus on the special search problems of minority households as well as those of low-income households. Fourth, measures of direct moving costs need to be included in the results. Finally, we need to broaden our comparison of how search procedures affect mobility so that it includes the size and type of consumption adjustment made.

APPENDIX TABLES

Table A.1

COEFFICIENTS OF REGRESSIONS OF PROBLEMS ENCOUNTERED AND SEARCH EFFORT: RENTER HOUSEHOLDS IN BROWN COUNTY, WISCONSIN

Independent Variable	Possible Values	Number of Sources Used	Number of Units Examined (ln)	Search Length (ln)	Number of Problems (ln)
Constant	--	1.524[a]	.192	1.943[a]	-.286
Persons per room	Positive continuous	.002	-.096[a]	-.048	.119[a]
Unit complaints	0-8	.017	-.035[a]	-.004	.012[a]
Safety complaints	0-3	-.033	.111	.095	-.013
Neighborhood complaints	0-24	.026[a]	.004	.013	.016[a]
Forced to move	Yes = 1; No = 0	.298[a]	.112	-.190	.090[a]
Cost related move	Yes = 1; No = 0	.001	.082	-.235	.050
Job Change	Yes = 1; No = 0	.011	.331	.906[a]	-.108
Change in marital status	Yes = 1; No = 0	.196[a]	.077	-.293[a]	.026
New household	Yes = 1; No = 0	.135	-.098	-.053	.027
Other nonhousing reason	Yes = 1; No = 0	.034	.016	-.281	.101[a]
Prior owner	Yes = 1, No = 0	-.134	.091	-.308	.035
Number of local moves	Positive continuous	-.045[a]	-.045[a]	-.052	.014
Length of stay (ln)	Positive continuous	-.022	-.008	.132[a]	-.020[a]
Black	Yes = 1; No = 0	.394	-.659	-2.280	.694
Other minority	Yes = 1; No = 0	.193	.086	-.297	.005
Head's years of schooling	Positive continuous	.020[a]	.026[a]	.002	.013[a]
Single male head	Yes = 1; No = 0	-.048	-.036	-.482[a]	.120[a]
Single female head	Yes = 1; No = 0	-.090	-.009	-.193	.110[a]
Single head with children	Yes = 1; No = 0	.244[a]	-.010	.208	.189[a]
Head's Age					
21	Yes = 1; No = 0	-.131	-.109	.039	.194[a]
21-29	Yes = 1; No = 0	-.180[a]	-.140	.011	.148[a]
30-39	Yes = 1; No = 0	-.064	-.150[a]	.094	.053
60-69	Yes = 1; No = 0	.091	-.339	-.002	-.064
70+	Yes = 1; No = 0	.282	-.262	.228	-.102
Number of children	Positive continuous	.011	-.046	.090[a]	.029[a]
Income eligible	Yes = 1; No = 0	.751[a]	.806[a]	.447[a]	.066
Near eligible	Yes = 1; No = 0	.234	.717[a]	.511[a]	.035
Total income (ln)	Positive continuous	-.018	.065	.035	.010
Income Sources (%)					
Earnings	Positive continuous	.004[a]	-.001	-.001	-.0005
Welfare	Positive continuous	.002	.0003	.001	.001
Related to landlord	Yes = 1; No = 0	-.171	-.328[a]	-.401[a]	-.158[a]
Work for landlord	Yes = 1; No = 0	-.060	-.117	-.132	.071
Importance of neighbors	0-3	.086[a]	.035	.127[a]	.011
Interactions					
Ineligible--1	Yes = 1; No = 0	.495[a]	.770[a]	.545[a]	N/A
Ineligible--more than 1	Yes = 1; No = 0	.404[a]	.764[a]	.204	N/A
Eligible--none	Yes = 1; No = 0	-.250	-.703[a]	-.700[a]	N/A
Eligible--1	Yes = 1; No = 0	.020	-.535[a]	-.267	N/A
Near eligible--none	Yes = 1; No = 0	-.716[a]	-.823[a]	-.800[a]	N/A
Near eligible--1	Yes = 1; No = 0	-.261[a]	-.229[a]	.036	N/A
R^2		.135	.161	.090	.182
F		5.13	6.32	3.24	8.67

SOURCE: Analysis by HASE staff from records for the baseline survey of households, Site I.

NOTE: Regression analysis was performed on records of 1,325 renter households who conducted an active housing search and moved locally in the 5 years preceding the survey.

[a]Coefficient is significantly different from zero at the .10 level.

Table A.2

COEFFICIENTS OF REGRESSIONS OF PROBLEMS ENCOUNTERED AND SEARCH EFFORT: RENTER HOUSEHOLDS IN ST. JOSEPH COUNTY, INDIANA

Independent Variable	Possible Values	Number of Sources Used	Number of Units Examined (ln)	Search Length (ln)	Number of Problems (ln)
Constant	--	1.944[a]	.437	1.110	-.171
Persons per room	Positive continuous	-.031	-.016	.065	.034
Unit complaints	0-8	.014	.006	.032	.032[a]
Safety complaints	0-3	.054	.027	.094	-.030
Neighborhood complaints	0-24	.008	.001	-.005	.018[a]
Forced to move	Yes = 1; No = 0	.104	.249[a]	.022	.110[a]
Cost related move	Yes = 1; No = 0	-.072	.030	.322	.006
Job change	Yes = 1; No = 0	.865	1.022[a]	1.321	-.070
Change in marital status	Yes = 1; No = 0	.045	.219[a]	-.109	.053
New household	Yes = 1; No = 0	.126	.133	.024	.236[a]
Other nonhousing reason	Yes = 1; No = 0	.015	.159	.207	.083
Prior owner	Yes = 1; No = 0	-.030	.069	-.357	.057
Number of local moves	Positive continuous	.085[a]	-.022	-.046	.028
Length of stay (ln)	Positive continuous	.012	.002	.075	-.007
Black	Yes = 1; No = 0	.241[a]	-.035	.128	-.0007
Other minority	Yes = 1; No = 0	-.040	-.006	.504	.143
Head's years of schooling	Positive continuous	-.009	.028[a]	.009	-.003
Single male head	Yes = 1; No = 0	-.172	.190[a]	-.250	.020
Single female head	Yes = 1; No = 0	-.129	.157[a]	-.0003	.054
Single head with children	Yes = 1; No = 0	.103	.043	.098	.195[a]
Head's Age					
21	Yes = 1; No = 0	-.195	.039	-.153	.292[a]
21-29	Yes = 1; No = 0	-.002	.074	-.054	.188[a]
30-39	Yes = 1; No = 0	-.146	-.069	-.440[a]	.089
60-69	Yes = 1; No = 0	-.370[a]	-.249	-.052	-.138
70+	Yes = 1; No = 0	-.383	.269	.271	-.330[a]
Number of children	Positive continuous	.014	-.021	.049	.002
Income eligible	Yes = 1; No = 0	.441[a]	.437[a]	.634[a]	.062
Near eligible	Yes = 1; No = 0	.266	.526[a]	.580[a]	-.002
Total income (ln)	Positive continuous	.052	.002	.113[a]	.036
Income Sources (%),					
Earnings	Positive continuous	-.003	-.001	-.0002	-.002
Welfare	Positive continuous	-.0001	-.002	.002	-.001
Related to landlord	Yes = 1; No = 0	-.015	-.107	.292	-.0008
Work for landlord	Yes = 1; No = 0	.243	-.161	.338	-.100
Importance of neighbors	0-3	.062	.024	.206[a]	-.002
Ineligible--1	Yes = 1; No = 0	.048	.307[a]	.290	N/A
Ineligible--more than 1	Yes = 1; No = 0	.523[a]	.569[a]	.552[a]	N/A
Eligible--none	Yes = 1; No = 0	-.401[a]	-.438[a]	-.569[a]	N/A
Eligible--1	Yes = 1; No = 0	.0004	-.212	-.249	N/A
Near eligible--none	Yes = 1; No = 0	-.645[a]	-.584[a]	-.614[a]	N/A
Near eligible--1	Yes = 1; No = 0	-.282[a]	-.126	-.248	N/A
R^2	--	.151	.142	.076	.157
F	--	3.51	3.27	1.62	4.37

SOURCE: Analysis by HASE staff from records for the baseline survey of households, Site II.

NOTE: Regression analysis was performed on records of 811 renter households who conducted an active housing search and moved locally in the 5 years preceding the survey.

[a]Coefficient is significantly different from zero at the .10 level.

Table A.3

COMPARISON OF THE NUMBER OF TYPES OF DISCRIMINATION ENCOUNTERED BY ACTIVE SEARCHERS: RENTER HOUSEHOLDS IN BROWN COUNTY, WISCONSIN, AND ST. JOSEPH COUNTY, INDIANA

	Brown County			St. Joseph County		
	Types of Discrimination (ln)[a]			Types of Discrimination (ln)[a]		
Income Groups	$Mean_1$	$Mean_2$	t	$Mean_1$	$Mean_2$	t
Low vs. moderate	.40	.27	3.87[b]	.56	.43	2.84[b]
Low vs. high	.40	.22	6.05[b]	.56	.37	4.27[b]
Moderate vs. high	.27	.22	1.55	.43	.37	1.09

SOURCE: Tabulated by HASE staff from records for the baseline surveys of households, Sites I and II.

NOTE: Entries are unweighted estimates based on a stratified probability sample of 1,325 renter households in Brown County and 811 in St. Joseph County who conducted an active housing search and moved locally in the 5 years preceding the surveys.

[a]Number of different responses to the question, "While you were searching, was anyone reluctant to rent you a unit because of your (age, sex, marital status,...)?" This number was then transformed to a natural logarithm to stabilize the variance of the error term. Because the natural logarithm of zero is undefined, the constant one was added to all values.

[b]Significant at the .05 level.

Table A.4

COMPARISON OF THE SEARCH EFFORTS OF ACTIVE SEARCHERS: RENTER HOUSEHOLDS IN BROWN COUNTY, WISCONSIN

Comparison	Sources Used			Number of Units Examined (ln)[a]			Length of Search, in Days (ln)[a]		
	$Mean_1$	$Mean_2$	t	$Mean_1$	$Mean_2$	t	$Mean_1$	$Mean_2$	t
All Searchers									
Low vs. moderate income	2.14	1.92	3.46[b]	.91	.85	.94[b]	2.38	2.35	.31
Low vs. high income	2.14	1.97	2.96[b]	.91	1.03	2.10[b]	2.38	2.43	.44
Moderate vs. high income	1.92	1.97	-.70	.85	1.03	2.68[b]	2.35	2.43	.66
Problem = 0									
Low vs. moderate income	1.88	1.83	.71	.64	.74	1.43[b]	2.07	2.20	.93[b]
Low vs. high income	1.88	1.86	.37	.64	.84	3.15[b]	2.07	2.33	2.11[b]
Moderate vs. high income	1.83	1.86	-.37	.74	.84	1.36	2.20	2.33	.94
Problem = 1									
Low vs. moderate income	2.38	2.16	1.45	1.25	.92	2.28[b]	2.91	2.67	.90
Low vs. high income	2.38	2.36	.10	1.25	1.61	2.58[b]	2.91	2.85	.24
Moderate vs. high income	2.16	2.36	-1.25	.92	1.61	4.40[b]	2.67	2.85	.62
Problem > 1									
Low vs. moderate income	2.73	2.14	3.44[b]	1.47	1.46	.06	2.90	2.77	.42
Low vs. high income	2.73	2.25	2.79[b]	1.47	1.58	.67	2.90	2.52	1.26
Moderate vs. high income	2.14	2.25	-.52	1.46	1.58	.59	2.77	2.52	.67
Low Income									
Prob. = 0 vs. prob. = 1	1.88	2.38	-4.73[b]	.64	1.25	6.15[b]	2.07	2.91	4.55[b]
Prob. = 1 vs. prob. > 1	1.88	2.73	-9.01[b]	.64	1.47	9.28[b]	2.07	2.90	5.02[b]
Prob. = 1 vs. prob. > 1	2.38	2.73	-2.84[b]	1.25	1.47	1.84	2.91	2.90	.04
Moderate Income									
Prob. = 0 vs. prob. = 1	1.83	2.16	-2.43[b]	.74	.92	1.37[b]	2.20	2.67	1.97[b]
Prob. = 0 vs. prob. > 1	1.83	2.14	-1.90	.74	1.46	4.59[b]	2.20	2.77	1.99[b]
Prob. = 1 vs. prob. > 1	2.16	2.14	.10	.92	1.46	2.92[b]	2.67	2.77	.31
High Income									
Prob. = 0 vs. prob. = 1	1.86	2.36	-4.10[b]	.84	1.61	6.50[b]	2.33	2.85	2.39
Prob. = 0 vs. prob. > 1	1.86	2.25	-2.45[b]	.84	1.58	4.81[b]	2.33	2.52	.68
Prob. = 1 vs. prob. > 1	2.36	2.25	.60	1.61	1.58	.18	2.85	2.52	.99

SOURCE: Tabulations by HASE staff from records for the baseline survey of households, Site I.

NOTE: Entries are unweighted estimates based on a stratified probability sample of 1,325 renter households who conducted an active housing search and moved locally in the 5 years preceding the survey.

[a]The number of units examined and the days spent searching were transformed to natural logarithms to normalize their regression error terms.

[b]Significant at the .05 level.

Table A.5

COMPARISON OF THE SEARCH EFFORTS OF ACTIVE SEARCHERS: RENTER HOUSEHOLDS IN ST. JOSEPH COUNTY, INDIANA

Comparison	Sources Used			Number of Units Examined (ln)[a]			Length of Search, in Days (ln)[a]		
	$Mean_1$	$Mean_2$	t	$Mean_1$	$Mean_2$	t	$Mean_1$	$Mean_2$	t
All Searchers									
Low vs. moderate income	2.47	2.38	1.20	1.00	1.12	1.61	2.82	2.71	.77
Low vs. high income	2.47	2.38	1.18	1.00	1.11	1.64	2.82	2.61	1.50
Moderate vs. high income	2.38	2.38	.07	1.12	1.11	.04	2.71	2.61	.59
Problem = 0									
Low vs. moderate income	2.15	2.17	.16	.74	.98	2.41[b]	2.54	2.49	.26
Low vs. high income	2.15	2.27	1.12	.74	.94	2.15[b]	2.54	2.48	.34
Moderate vs. high income	2.17	2.27	.82	.98	.94	.37	2.49	2.48	.06
Problem = 1									
Low vs. moderate income	2.57	2.59	.14	1.17	1.20	.19	2.91	2.85	.20
Low vs. high income	2.57	2.34	1.34	1.17	1.26	.65	2.91	2.72	.66
Moderate vs. high income	2.59	2.34	1.30	1.20	1.26	.39	2.85	2.72	.39
Problem > 1									
Low vs. moderate income	2.94	2.70	1.37	1.31	1.41	.66	3.20	3.14	.18
Low vs. high income	2.94	2.89	.27	1.31	1.57	1.64	3.20	2.99	.68
Moderate vs. high income	2.70	2.89	.85	1.41	1.57	.84	3.14	2.99	.42
Low Income									
Prob. = 0 vs. prob. = 1	2.15	2.57	3.26[b]	.74	1.17	3.86[b]	2.54	2.91	1.70[b]
Prob. = 1 vs. prob. > 1	2.15	2.94	7.26[b]	.74	1.31	6.08[b]	2.54	3.20	3.57[b]
Prob. = 1 vs. prob. > 1	2.57	2.94	2.68[b]	1.17	1.31	1.20	2.91	3.20	1.23
Moderate Income									
Prob. = 0 vs. prob. = 1	2.17	2.59	2.51[b]	.98	1.20	1.50[b]	2.49	2.85	1.24[b]
Prob. = 0 vs. prob. > 1	2.17	2.70	3.05[b]	.98	1.41	2.86[b]	2.49	3.14	2.20[b]
Prob. = 1 vs. prob. > 1	2.59	2.70	.53	1.20	1.41	1.19	2.85	3.14	.85
High Income									
Prob. = 0 vs. prob. = 1	2.27	2.34	.48[b]	.94	1.26	2.45[b]	2.48	2.72	.92
Prob. = 0 vs. prob. > 1	2.27	2.89	3.45[b]	.94	1.57	4.06[b]	2.48	2.99	1.67
Prob. = 1 vs. prob. > 1	2.34	2.89	2.65[b]	1.26	1.57	1.72	2.72	2.99	.77

SOURCE: Tabulated by HASE staff from records for the baseline survey of households, Site II.

NOTE: Entries are unweighted estimates based on a probability sample of 811 renter households who conducted an active housing search and moved locally in the 5 years preceding the survey.

[a]The number of units examined and the days spent searching were transformed to natural logarithms to normalize their regression error terms.

[b]Significant at the .05 level.

BIBLIOGRAPHY

Barnett, C. Lance, *Using Hedonic Indexes To Measure Housing Quantity*, The Rand Corporation, R-2450-HUD, forthcoming.

Barresi, C., "The Role of the Real Estate Agent in Residential Location," *Sociological Focus*, No. 1, 1968, pp. 58-71.

Barrett, Frank, *Residential Search Behavior*, York University Research Monograph, 1973.

Brown, Lawrence, and Eric G. Moore, "The Intra-Urban Migration Process: A Perspective," *Geografiska Annaler*, Vol. 52, D, 1970, pp. 1-13.

Brown, Lawrence, and G. Holmes, "Search Behavior in an Intra-Urban Migration Context: A Spatial Perspective," *Environment and Planning*, Vol. 3, 1971, pp. 307-326.

Brown, Lawrence, et al., "Information Source Usage in the Migration Decision," unpublished paper presented at Population Association of America meeting, 1974.

Butler, Edgar W., et al., *Moving Behavior and Residential Choice*, National Cooperative Highway Research Program, Report No. 81, Highway Research Board, 1969.

Duncan, Greg J., and Sandra J. Newman, "Expected and Actual Residential Mobility," *AIP Journal*, Vol. 42, No. 2, 1976, pp. 174-186.

Flowerdew, Robin, "Search Strategies and Stopping Rules in Residential Mobility," *Transactions of the Institute of British Geographers*, 1976, pp. 47-57.

Hempel, Donald G., *The Role of the Real Estate Agent in the Home Buying Process*, Real Estate Report No. 7, Center for Real Estate and Urban Economic Studies, School of Business Administration, University of Connecticut, 1969a.

Hempel, Donald G., *Search Behavior and Information Utilization in the Home Buying Process*, Center for Real Estate and Urban Economic Studies, School of Business Administration, University of Connecticut, 1969b.

Hanushek, Eric A., and John M. Quigley, "An Explicit Model of Intra-Urban Mobility," *Land Economics*, Vol. 54, No. 4, 1978, pp. 411-429.

Moore, Eric G., "The Nature of Intra-Urban Migration and Some Relevant Research Strategies," *Proceedings of the American Association of Geographers*, Vol. 1, 1969, pp. 113-116.

Moore, Eric G., *Residential Mobility in the City*, Commission on College Geography Resource Paper No. 13, American Association of Geographers, 1972.

Morgan, J. N. (ed.), *Five Thousand American Families: Patterns of Economic Progress*, Vol. 2, Survey Research Center, Institute for Social Research, Ann Arbor, Michigan, 1972.

Quigley, John M., and Daniel H. Weinberg, "Intra-Urban Residential Mobility: A Review and Synthesis," *International Regional Science Review*, Fall, 1977, pp. 41-66.

Rossi, Peter, *Why Families Move*, Free Press, Chicago, Illinois, 1955.

Sabagh, Georges, D. Van Arsdol, Jr., and Edgar W. Butler, "Some Determinants of Intrametropolitan Residential Mobility: Conceptual Considerations," *Social Forces*, Vol. 48, 1969, pp. 88-98.

Silk, John, *Search Behavior: General Characterization and Review of Literature in the Behavioral Sciences*, Geographical Papers No. 7, Department of Geography, University of Reading, 1971.

Smith, T. R., et al., *A Decisionmaking and Search Model for Intra-Urban Migration*, Working Paper in Economics No. 97, University of California, Santa Barbara, 1977.

Snedecor, George W., and William G. Cochran, *Statistical Methods*, Sixth Edition, Iowa State University Press, Ames, Iowa, 1974.

Speare, Alden Jr., "Residential Satisfaction as an Intervening Variable in Residential Mobility," *Demography*, Vol. 2, No. 2, 1974, pp. 173-188.

Speare, Alden Jr., Sidney Goldstein, and William H. Frey, *Residential Mobility, Migration, and Metropolitan Change*, Ballinger, 1975.

U.S. Bureau of the Census, "Reasons for Moving: March 1962 to March 1963," *Current Population Reports*, Series P-20, No. 154, U.S. Government Printing Office, Washington, D.C., 1966.

Vermilya, Clifford R., *Racial Steering: Equal Opportunity and the Dual Housing Market*, Management Information Service Report, Vol. 8, No. 2, International City Management Association, 1976.

Wolpert, Julian, "Behavioral Aspects of the Decision to Migrate," *Papers of the Regional Science Association*, Vol. 15, 1965, pp. 159-172.